U.S. Application No. 09/823,207
Request for Reconsideration dated April 17, 2006
Reply to Office Action of February 17, 2006

REMARKS/ARGUMENTS

On April 14, 2006, Applicants were granted a telephonic interview with Primary Examiner Chaki for the purpose of understanding the reasons for the Office's assertion that the "Compilers Principles, Techniques, and Tools" to Aho et al. anticipate pending Claims 1, 3-9, 11-13, and 15-20, and for the purpose of explaining why Applicants believe that Aho et al. do not anticipate pending Claims 1, 3-9, 11-13, and 15-20. In attendance at the telephonic interview were Primary Examiner Chaki, Applicant Partha P. Tirumalai, and Agent of Record Gina A. Bibby.

Applicants respectfully note herein that Primary Examiner Chaki suggested during the telephonic interview that Applicants provide a written record of the arguments presented during the interview. Applicants have provided the suggested written record below in the discussion of the rejection of Claims 1, 3-9, 11-13, and 15-20.

Applicants also respectfully note herein that Primary Examiner Chaki further suggested during the telephonic interview that Applicants consider incorporating the "simultaneously optimizing" language from the claim preamble into the body of the independent claims of the claimed invention to provide further clarification that a single optimization model is being provided for multiple target machines each having different architectural characteristics. If Examiner believes that the record of the telephonic interview provided by Applicants in this paper is incomplete, Applicants respectfully request that the Examiner provide a supplementation to the record provided herein.

This Request for Reconsideration is filed in response to the Final Office Action mailed February 17, 2006. Claims 1, 3-9, 11-13 and 15-20 have been rejected. No Claims have been amended. Claims 1, 3-9, 11-13, and 15-20 are pending. It is respectfully

U.S. Application No. 09/823,207
Request for Reconsideration dated April 17, 2006
Reply to Office Action of February 17, 2006

submitted that the pending claims define allowable subject matter. Applicants respectfully

request reconsideration of the application in view of the following remarks submitted in

support thereof.

Discussion of Rejection of Claims 1, 3-9, 11-13 and 15-20 under 35 U.S.C. § 112

First Paragraph

In Section 1 of the Final Office Action, the Examiner rejected Claims 1, 3-9, 11-13

and 15-20 under 35 U.S.C. § 112, first paragraph, because the independent claims require

"hypothetical machine model is capable of operating" which establishes an unclear

relationship between the model and the target machines.

Examiner's rejection is respectfully traversed. Applicants respectfully submit that the

claims overcome the Examiner's rejection under 35 U.S.C. § 112 since use of the language

"capable of operating" in the claims is provided to allow for simultaneous optimization of

code for at least two machines where the hypothetical machine model can operate (i.e. is

capable of operating) on each of the at least two target machines.

Discussion of Rejection of Claims 1, 3-6, 8-9, 11-13, and 15-20 under 35 U.S.C. § 102(b)

In Section 2 of the Final Office Action, the Examiner rejected Claims 1, 3-6, 8-9, 11-

13, and 15-20 35 U.S.C. § 102(b) as being anticipated by Aho et al., "Compilers: Principles,

Techniques, and Tools."

The Examiner's rejection is respectfully traversed. During the telephonic interview

with Primary Examiner Chaki, Applicants explained to Primary Examiner Chaki why the

Examiner's citations to Aho et al. do not teach or suggest the generation of a hypothetical

U.S. Application No. 09/823,207
Request for Reconsideration dated April 17, 2006
Reply to Office Action of February 17, 2006

machine model based on a rule of instruction scheduling for each of at least two target

machines where a rule of instruction scheduling for the hypothetical machine is a restrictive

set of the rule of instruction scheduling for each of the at least two target machines, as recited

in independent Claims 1, 8, 13, 19, and 20. Applicants further explained to Primary

Examiner Chaki that Aho et al. does not provide *any* teaching or suggestion in *any* of its

chapters that is relevant to the topic of instruction scheduling and its relationship to machine-

dependent optimization.

In particular, Applicants explained to Primary Examiner Chaki that "instruction

scheduling" is unrelated to the introductory intermediate code generation compiler principles

taught by Aho et al. and cited to by the Examiner, as "instruction scheduling" is recognized

by those of ordinary skill in the art as a compiler phase that is concerned with ordering

instructions for a particular type of machine architecture to maximize the number of functions

units operating in parallel and to minimize the time the functions units are waiting for each

other etc. Specifically, instruction scheduling is recognized by those of ordinary skill in the

art as a *machine-dependent* concept that implicates the specific characteristics of a target

machine architecture including whether or how the target machine is pipelined, clock speeds

of the target machine, how many instructions per single clock cycle a microprocessor of the

target machine can process, etc. Whereas, Aho et al. and specifically those sections of Aho et

al. cited to by the Examiner, teach facilitating *machine-independent* code optimization

utilizing intermediate code generation concepts which are, as recognized by those of ordinary

skill in the art, unrelated to providing machine-dependent code optimization utilizing rule of

instruction scheduling, as recited in the claimed invention.

Applicants then explained to Primary Examiner Chaki that on page 3 of the Final

Office Action mailed February 17, 2006, the Examiner cites "page 20, section 'Front and

U.S. Application No. 09/823,207
Request for Reconsideration dated April 17, 2006
Reply to Office Action of February 17, 2006

Back Ends,' second paragraph" and "page 463, the necessary set of rules to target the machines" of Aho et al. to support an assertion that Aho et al. discloses "a rule of instruction scheduling for said hypothetical machine is a restrictive set of said rule of instruction scheduling for each a said at least two target machines," as recited in independent Claims 1, 8, 13, 19, and 20. Contrary to the Examiner's assertion, Applicants pointed out to Primary Examiner Chaki that page 20 of Aho. et al., section "Front and Back Ends," second paragraph, is wholly absent of any explicit or implicit reference to instruction scheduling in any context. Rather, Applicants explained to Primary Examiner Chaki that page 20 of Aho. et al., section "Front and Back Ends," second paragraph teaches introductory compiler principles related to the topic of code optimization utilizing intermediate code generation, a topic which is non-instructive on the topic of instruction scheduling as it can relate to machine-dependent code optimization.

Applicants similarly explained to Primary Examiner Chaki that page 463, which the Examiner asserts teaches "the necessary set of rules to target the machines" (*see* page 3 of Final Office Action mailed February 17, 2006), is likewise non-instructive on the topic of instruction scheduling as it can relate to machine-dependent code optimization. Again, page 463 of Aho et al. is wholly absent of any implicit or explicit teaching, suggestion, or reference to instruction scheduling but, rather provides teachings on the use of a "*machine-independent intermediate form*" to perform "machine-independent code" optimization (*see* Aho et. al., page 463, entitled "Intermediate Code Generation"; page 463, "...some benefits of using a *machine-independent* intermediate form are ... a compiler for a different machine can be created ... [and] a *machine-independent code optimizer* can be applied to the intermediate representation"; page 463, "[t]his chapter shows how the syntax-directed

U.S. Application No. 09/823,207
Request for Reconsideration dated April 17, 2006
Reply to Office Action of February 17, 2006

methods of Chapters 2 and 5 can be used to translate into an intermediate form programming

language constructs such a declarations, assignments, and flow-of-control statements").

The foregoing demonstrates that <u>Aho et al</u>. does not teach each and every element and

limitation of independent Claims 1, 8, 13 and 19. Consequently, <u>Aho et al.</u> does not

anticipate independent Claims 1, 8, 13 and 19 and Applicants respectfully request that the

102 rejection be withdrawn. Claims 3-6, 9, 11, 12 and 15-18 indirectly or directly depend

from independent Claims 1, 8, 13 and 19 respectively and, as these dependent claims depend

from allowable base claims, they too are not anticipated by <u>Aho et al</u>. Applicants

respectfully request, therefore, that the rejection of these dependent claims also be

withdrawn.

<u>Discussion of Rejection of Claim 7 under 35 U.S.C. §103(a)</u>

In Section 5 of the Office Action, the Examiner rejected Claim 7 under 35 U.S.C.

§103(a) as being unpatentable over <u>Aho et al.</u> in view of "UltraSPARC-III: Designing Third-

Generation 64-Bit Performance" (hereinafter <u>III</u>) and Sun Microsystems press release of May
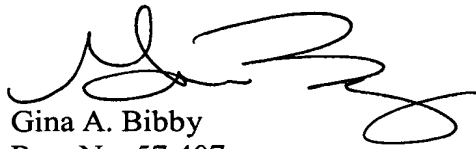
1998 (hereinafter <u>II</u>).

The Examiner's rejection is respectfully traversed. Assuming, *arguendo*, that there is

a suggestion or motivation to combine the cited references, a proposition with which the

Applicants would disagree, the combination still fails to teach each and every element and

limitation of independent Claim 1, as discussed above, from which Claim 7 depends.

Accordingly, Applicant respectfully requests the Examiner to withdraw the 35 U.S.C.

§ 103(a) rejection for pending Claim 7.

U.S. Application No. 09/823,207
Request for Reconsideration dated April 17, 2006
Reply to Office Action of February 17, 2006

Conclusion

In view of the foregoing, the Applicant respectfully submits that all the pending Claims 1, 3-9, 11-13 and 15-20 are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present amendment, the Examiner is requested to contact the undersigned at (408) 749-6920. If any additional fees are due in connection with filing this amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. SUNMP303). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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